

I claim:

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DS
1. In combination:

- 2 a container including a normally upper neck having an open
normally upper end, and a circumferential shoulder about said
4 neck below said upper end having a normally lower side,

a tamper-evident closure for said container comprising a tamper-
6 evident cap positioned over said neck including a circumferential
side wall having normally upper and lower ends, an upper end wall
8 joined to the upper end of said side wall and closing the upper
end of the cap, an opening in the lower end of said cap
10 circumferentially surrounded by the lower end of said side wall,
and cap retaining means on the lower end of said side wall
12 engaging the lower side of said shoulder to prevent upward
removal of said cap from said container neck, and wherein

14 said cap side wall includes a parting region extending
circumferentially about said side wall between said side wall
16 ends at which the cap may be parted into a lower cap portion
which is fixed against upward removal from the container neck and
18 an upper cap portion which is removable upwardly from the neck to
provide access to the neck, and junction means joining said cap
20 portions along said parting region to which a force may be
applied to part said cap along said region in a manner which
22 provides a tampering indicator for the container and permits
upward removal of said upper cap end portion from said container
24 neck by a legitimate user.

~~2. The combination of claim 1 wherein:~~

- ~~2 said container neck has external screw threads between said shoulder and said upper neck end, and~~
- ~~4 said closure includes internal screw threads within said upper cap portion engaging said container threads, and sealing means~~
- ~~6 within said upper cap portion sealing the open upper end of said container neck.~~

~~3. The combination of claim 1 wherein:~~

- ~~2 said cap comprises an outer cap, and~~
- ~~4 said combination includes an inner cap within said outer cap removably secured to said container neck and sealing the open upper end of said container neck.~~

~~4. The combination of claim 1 wherein:~~

- ~~2 said cap retaining means are flexible in a manner which permits placement of said cap over said container neck but prevents~~
- ~~4 upward removal of the cap from the container neck.~~

5. The combination of claim 1 wherein:

2 said cap comprises an outer cap,

said combination includes an inner cap within said outer cap

4 threaded on said container neck and sealing the open upper end of
said container neck, and

6 said inner cap engages said outer cap for rotation of said inner
cap by rotation of said outer cap.

6. The combination of claim 1 wherein:

2 said container neck has external screw threads between said
shoulder and said upper neck end,

4 said cap side wall includes a rupture line which extends
circumferentially about the cap side wall between said cap
6 portions,

8 said closure includes means providing internal screw threads
within said upper cap portion engaging said container threads,
whereby rotation of said cap in one direction relative to said
10 container with said cap retaining means in contact with said
container shoulder urges said upper cap portion upwardly relative
12 to said lower cap portion and thereby stresses said rupture line.
and

14 said cap is capable of being ruptured along said rupture line by
said stress.

7. The combination of claim 1 wherein:

2 said container neck has external screw threads between said
shoulder and said upper neck end,

4 said cap comprises an outer cap,

5 said combination includes an inner cap within said outer cap
6 threaded on and sealing the open upper end of said container neck
7 and engaging said upper portion of said outer cap for rotation of
8 said inner cap by said outer cap,

10 said outer cap comprises a rupture line which extends
11 circumferentially about the outer cap side wall between said
12 upper and lower portions of said outer cap,

14 rotation of said inner cap by said outer cap in a direction to
15 unscrew said inner cap from the container with said cap retaining
16 means in contact with said container shoulder urges said upper
portion of said outer cap upwardly relative to said lower portion
of said outer cap and thereby stresses said rupture line, and

18 said outer cap is capable of being ruptured along said rupture
line by said stress.

8. The combination of claim 1 wherein:

2 said junction means comprises a tear strip.

9. The combination of claim 1 wherein:

2 said cap retaining means comprise upwardly angled flexible
fingers spaced circumferentially about the lower end of said cap
4 side wall and extending inwardly from said cap side wall at an
oblique angle to the side wall and upwardly toward the upper end
6 of the cap, and

8 said fingers are flexible upwardly and outwardly toward the cap
side wall to permit the fingers to pass downwardly over said
10 container shoulder during placement of said cap on the container
neck to a position wherein said fingers engage the lower side of
12 said shoulder to prevent upward removal of said cap from the
container.

10. The combination of claim 1 wherein:

2 said cap comprises an outer cap,

4 said combination includes an inner cap within and engaging said
upper portion of said outer cap and threaded on said container
neck for sealing the open upper end of said neck.

6 said inner cap is rotatable by said outer cap.

said junction means comprises a tear strip,

8 said cap retaining means comprise upwardly angled flexible
fingers spaced circumferentially about the lower end of said
10 outer cap side wall and extending inwardly from said cap side
wall at an oblique angle to the side wall and upwardly toward the
12 upper end of the cap, and

14 said fingers are flexible upwardly and outwardly toward the cap
side wall in a manner which permits the fingers to pass
downwardly over said container shoulder during placement of said
16 outer cap on the container neck to a position wherein said
fingers engage the lower side of said shoulder to prevent upward
18 removal of the outer cap from said container neck.

11. The combination of claim 10 wherein:

2 rotation of said inner cap by said outer cap in a direction to
unscrew said inner cap from said container with said cap
4 retaining fingers in contact with said container shoulder urges
said upper portion of said outer cap upwardly relative to said
6 lower portion of said outer cap and thereby stresses said parting
region, and

8 said junction means further comprises a rupture line which
10 extends circumferentially about the cap side wall at said parting
region, and is capable of being ruptured by said stress.

12. A tamper-evident closure for a container including a normally
2 upper neck having an open normally upper end, and a
circumferential shoulder about said neck below said upper end
4 having a normally lower side, said closure comprising:

6 a cap to be positioned over said container neck including a
circumferential side wall having normally upper and lower ends,
8 an upper end wall joined to the upper end of said side wall and
closing the upper end of the cap, an opening in the lower end of
10 said cap circumferentially surrounded by the lower end of said
side wall, and cap retaining means on the lower end of said side
wall engagable with the lower side of said shoulder to prevent
12 upward removal of said cap from said container neck, and wherein

14 said cap side wall includes a parting region extending
circumferentially about said side wall between said side wall
ends at which the cap may be parted into upper and lower cap
16 portions, and junction means joining said cap portions along said
parting region to which a force may be applied to part said cap
18 along said region.

13. The tamper-evident closure of claim 12 wherein:

2 said container includes external screw threads between said shoulder and the upper end of said container neck, and

4 said closure includes internal screw threads within said upper cap portion for engaging said container threads, and sealing
6 means within said upper cap portion for sealing the open upper end of said container neck.

14. The tamper-evident closure of claim 12 wherein:

2 said cap comprises an outer cap, and

4 said closure includes an inner cap within said outer cap to be removably secured to said container neck for sealing the open upper end of the neck.

15. The tamper-evident closure of claim 12 wherein:

2 said cap retaining means comprise upwardly angled flexible fingers which permit placement of said cap over said container neck but prevent upward removal of the cap from the container neck.

16 The tamper-evident closure of claim 12 wherein:

- 2 said cap comprises an outer cap,
- 4 said closure includes an inner internally threaded cap within
said outer cap to be threaded on said container neck for sealing
the open upper end of the neck, and
- 6 said inner cap engages said outer cap for rotation of said inner
cap by rotation of said outer cap.

17. The tamper-evident closure of claim 12 wherein:

- 2 said container neck has external screw threads between said
shoulder and said upper neck end,
- 4 said cap has a rupture line extending circumferentially about
said cap side wall between said upper and lower cap portions.
- 6 said closure includes internal screw threads within said upper
cap portion for engaging said container threads, whereby when
- 8 said cap is mounted on said container neck with said cap
retaining means in contact with said container shoulder, rotation
- 10 of said cap in one direction urges said upper cap portion
upwardly relative to said lower cap portion and thereby stresses
- 12 said rupture line, and
- 14 said cap is capable of being ruptured along said rupture line by
said stress.

18. The tamper-evident closure of claim 12 wherein:

2 said container neck has external screw threads between said shoulder and said upper neck end,

4 said cap has a rupture line extending circumferentially about said cap side wall between said upper and lower cap portions.

6 said cap comprises an outer cap,

8)
said closure comprises an inner cap within said outer cap to be threaded on said container neck for sealing the open upper end of
10) the neck and engaging said upper portion of said outer cap in
such a way that said inner cap is rotatable by rotation of said
outer cap, and rotation of said inner cap by said outer cap in a
12 direction to unscrew the inner cap from the container when said
closure is mounted on said container neck with said cap retaining
14 means in contact with said container shoulder urges said upper
portion of said outer cap upwardly relative to said lower portion
16 of said outer cap and thereby stresses said rupture line, and

18)
said cap is capable of being ruptured along said rupture line by
said stress.

19. The tamper-evident closure of claim 12 wherein:

2 said junction means comprises a tear strip.

20. The tamper-evident closure of claim 12 wherein:

2 said cap has a rupture line extending circumferentially about
4 said cap side wall between said upper and lower cap portions at
6 which said cap is adapted to be ruptured to separate said cap
portions by opposing axial forces acting on said cap portions
line in tension.

21. The tamper-evident closure of claim 12 wherein:

2 said container neck has external screw threads between said
4 shoulder and said upper neck end,

4 said cap comprises an outer cap,

6 said closure includes an internally threaded inner cap within
8 said outer cap and adapted to be threaded on said container neck
for sealing the open upper end of the neck,

8 said junction means comprises a tear strip,

10 said cap retaining means comprise upwardly angled flexible
12 fingers spaced circumferentially about the lower end of said
outer cap side wall and extending inwardly from said cap side
wall at an oblique angle to the side wall and upwardly toward the
upper end of the cap, and

14 said fingers are flexible outwardly to permit the fingers to pass downwardly over said container shoulder to a position wherein

16 said fingers engage the lower side of said shoulder and prevent upward removal of the outer cap from said container neck.

22. The tamper-evident closure of claim 21 wherein:

2 said outer cap has a rupture line extending circumferentially about said outer cap between said upper and lower portions of

4 said outer cap,

6 said inner cap engages said upper portion of said outer cap in such a way that said inner cap is rotatable by rotation of said outer cap, and rotation of said inner cap by said outer cap in a direction to unscrew the inner cap from the container when said closure is mounted on the container neck with said cap retaining

8 fingers in contact with said container urges said upper portion of said outer cap upwardly relative to said lower portion of said outer cap and thereby stresses said rupture line, and

10

12

14 said outer cap is capable of being ruptured along said rupture line by said stress.

23. The combination according to claim 5 wherein:

2 said inner cap is fixed within said upper portion of said outer cap..

24. The combination according to claim 5 wherein:

2 said inner cap is separable from said outer cap, and

4 said caps include engageable means limiting upward movement of
said inner cap within said outer cap.

25. The closure according to claim 18 wherein:

2 said inner cap is fixed within said upper portion of said outer
cap.

26. The closure according to claim 18 wherein:

2 said inner cap is separable from said outer cap, and

4 said caps include engageable means limiting upward movement of
said inner cap within said outer cap.

27. The tamper-evident closure of claim 12 wherein:

2 said junction means comprises a tear strip,

4 said cap has a rupture line extending circumferentially about
6 said cap side wall between said upper and lower cap portions at
which said cap is adapted to be ruptured to separate said cap
portions by opposing axial forces acting on said cap portions
in directions to stress said rupture line in tension,

8 said cap retaining means comprise upwardly angled flexible
10 fingers spaced circumferentially about the lower end of said
outer cap side wall and extending inwardly from said cap side
wall at an oblique angle to the side wall and upwardly toward
12 the upper end of the cap, and

14 said fingers are flexible outwardly to permit the fingers to
pass downwardly over said container shoulder to a position
wherein said fingers engage the lower side of said shoulder and
16 prevent upward removal of the outer cap from said container
neck.

28. The tamper-evident closure of claim 5 wherein:

2 said outer cap is configurated and adapted for use as a
drinking vessel.

29. The tamper-evident closure of claim 10 wherein:

2 said outer cap is configurated and adapted for use as a drinking vessel.

30. The tamper-evident closure of claim 12 wherein:

2 said cap is configurated and adapted for use as a drinking vessel.